



ISSN: 2329-6119 (Print)  
ISSN: 2329-6100 (Online)

# International Journal of Life Science Study (IJLSS)

DOI: <http://doi.org/10.7508/ijlss.01.2024.01.03>



## ARTICLE

# THE RESEARCH RESULTS OF 'MELON SEED TOOTH' AND ITS IMPLICATIONS FOR THE PUBLIC'S ORAL CARE SITUATION

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## ARTICLE DETAILS

## ABSTRACT

### Article History:

Received 21 November 2023  
Accepted 9 January 2024  
Available online 4 February 2024

Nut products, especially melon seeds, have become popular leisure snacks for people of all ages. However, the consumption process can have a subtle yet significant impact on teeth, even leading to oral health problems. This study conducted a questionnaire survey and found that the public has not given enough attention to the phenomenon of "melon seed teeth." By randomly surveying 67 adults of different ages, the study explored the different effects of various factors on the number of tooth gaps. It discussed the causes, influencing factors, and repair methods of "melon seed teeth" in order to raise public awareness of oral health. A comprehensive analysis suggests that the formation of melon seed teeth is complex and treatment methods vary. Oral hygiene care and a healthy lifestyle play a crucial role in preventing the formation of melon seed teeth. By improving public awareness of oral health, strengthening oral examinations, and implementing proper oral hygiene care measures, the prevention and treatment of melon seed teeth can be improved. With the advancement of oral materials, there are more effective and aesthetically pleasing repair methods for non-cavity tooth defects. Having a healthy set of teeth not only improves appearance but also has deeper implications for overall physical health.

### KEYWORDS

Melon Seed Teeth, Questionnaire Survey, Oral Care, Treatment and Repair

## 1. INTRODUCTION

With the development and progress of our society and the improvement of people's material and cultural life, oral health is increasingly valued by the public. The so-called "melon seed tooth" is a phenomenon caused by long-term chewing of nutty foods, resulting in tiny defects on the cutting edge of the teeth, forming a rough "V" shape commonly seen in the anterior teeth (Chen, 2009; Xiao, 1985). The width of this phenomenon is similar to the thickness of a melon seed, while its depth is closely related to factors such as the years, frequency, hardness of the melon seed, and the hardness and wear-resistance of the teeth. Firstly, the initial manifestation of "melon seed tooth" is a visible "V"-shaped groove, which mainly affects the aesthetics of the teeth. With the passage of time, this groove will gradually deepen, even revealing small cracks that allow light through, eventually leading to angular defects. Secondly, as the "V"-shaped groove deepens, the patient may experience sensitivity and discomfort in the affected teeth. In severe cases, it can even cause the exposure of the dental nerve, leading to nerve inflammation, intolerable pain, and becoming an important inducement for dental pulp disease and peri-implantitis.

In recent years, with the continuous research and breakthroughs in oral materials technology, the repair methods for "melon seed tooth" have

also seen significant development. In order to better understand the oral care situation of the general public in our country, this article conducts relevant research through questionnaire surveys. We hope that by analyzing the survey results, we can provide targeted suggestions and improve the public's awareness of oral health.

## 2. OVERVIEW OF THE "MELON SEED TEETH" INVESTIGATION

### 2.1 Overview of the investigation

(1) Investigation subjects. The participants in this questionnaire survey were non-medical professionals from the general public, divided into two age groups: 20-40 and 40-60. A total of 70 questionnaires were distributed, with 67 valid questionnaires received, giving a validity rate of 95.7%.

(2) Investigation method. This survey on "melon seed teeth" adopted a questionnaire method, setting different multiple-choice questions. To ensure the credibility of the survey, a one-by-one anonymous answer approach was used to objectively reflect the real thoughts of the investigated population. To ensure the effectiveness of the questionnaire, explanations were given before filling it out.

(3) Investigation purposes. Taking the habit of cracking melon seeds (hard nuts) as an entry point, the investigation mainly focused on the following aspects: (1) The frequency of cracking melon seeds (nuts); (2) The method and tooth position used for cracking melon seeds (nuts); (3) Whether there is a phenomenon of “melon seed teeth” and the number of gaps; (4) Whether believing that the gaps affect tooth health and whether the damage is irreversible or recoverable; (5) Whether considering repairing the tooth gaps? To further understand the oral care status of the general public, the following additional investigations were conducted: (6) Whether undergoing regular oral examinations at professional institutions; (7) The number of daily toothbrushing; (8) Assuming that tooth loss does not affect aesthetics, have you ever considered tooth replacement (implantation)?”

**2.2 Analysis of investigation results**

Through the questionnaire survey, relevant questions were raised and 67 people were statistically analyzed. The results showed a positive correlation between the frequency of eating sunflower seeds and the formation of “melon seed teeth”. Among them, 57 people chose to crack sunflower seeds with their front teeth, while 10 people chose other ways to eat sunflower seeds.

From the table 1 statistics, we can conclude that: (1) The frequency of young and middle-aged people aged 20-40 years old eating nuts is higher than that of the middle-aged and elderly population. (2) The number of female people who like to eat sunflower seed products is much higher than that of male people. (3) Sunflower seed products have a wide audience, and are closely related to our oral and overall health.

**3. INVESTIGATION INTO THE CAUSES OF “MELON SEED TEETH”**

**3.1 Correlation analysis of the impact of different factors on the number of missing teeth**

To comprehensively analyze the impact of different factors on the number of missing teeth, specific variable content is considered, and factors that may affect the number of missing teeth are divided into two categories: dental habits and health awareness, each with several sub-variables under each category. Using a scoring system, each variable value in each case row is scored. Finally, according to the scoring results, the data of the two categories is binned, making the results intuitive and

practical. By visualizing the number of missing teeth under different grouping methods using a heatmap, a preliminary judgment can be made that (1) dental habits may affect the number of missing teeth, and (2) health awareness may affect the number of missing teeth. Therefore, the following non-parametric test is conducted to infer the significance of corresponding variables in the population.

From the Fig.1 and table 2, it can be intuitively observed that there is a correlation between tooth usage habits and the number of notches. The more inadequate the tooth usage habits, the significantly increased conditional probability of the number of notches being greater than 1. From Figure 2, it can be directly observed that the number of notches decreases with the increase of health awareness.

The analysis of the Fig.2 and table 3 reflects: (1) In terms of age, the number of male individuals with gap = 1 is higher than that of female individuals with gap = 1. This suggests that with the improvement of living standards, the diversification of sunflower seed products has also attracted many male groups to join. (2) The number of individuals with gap > 1 who have poor dental habits accounts for 70%, which shows a significant increase compared to those with good and average dental habits. (3) The number of individuals with gap > 1 in the group with strong health consciousness has a significant decrease compared to the number of individuals with gap > 1 in the group with weak health consciousness. Therefore, the improvement of people's health awareness is of great significance in reducing the occurrence of sunflower seed teeth.

**4. PROGRESS IN STOMATOLOGICAL REPAIR OF “MELON SEED TEETH”**

In modern society, people are increasingly paying attention to their appearance, including the appearance of their teeth. Therefore, many people choose to undergo procedures such as orthodontic treatment and teeth whitening to improve the appearance of their teeth. However, good oral health is not just about maintaining a beautiful appearance; it is also closely related to health and quality of life. Based on the above analysis, it is known that the formation of “melon seed teeth” is mainly due to long-term chewing of hard foods such as melon seeds, walnuts, etc., resulting in gradual wear and flattening of the tooth surface. When the wear is mild, there may be no obvious symptoms. However, as the wear intensifies, the tooth surface becomes smooth, reducing chewing efficiency, and it may even lead to tooth sensitivity, temporomandibular

**Table 1: Basic description statistics of the cases**

		Frequency	Percentage
Age	20-40	35	52.2%
	40-60	32	47.8%
	Total	67	100.0%
Sex	Female	47	70.1%
	Male	20	29.9%
	Total	67	100.0%

**Table 2: Cross-tabulation of tooth habits and the number of gaps**

		Number of tooth openings		
		>1	1	0
Teeth habits (boxed)	Good	7.7%	15.4%	76.9%
	Average	25.0%	31.8%	43.2%
	Poor	70.0%	30.0%	0.0%

**Table 3: Cross-tabulation of health awareness and hole quantity**

		Number of tooth openings		
		0	1	>1
Health Awareness	Weak	28.6%	28.6%	42.9%
	Medium	43.9%	24.4%	31.7%
	Strong	47.4%	36.8%	15.8%

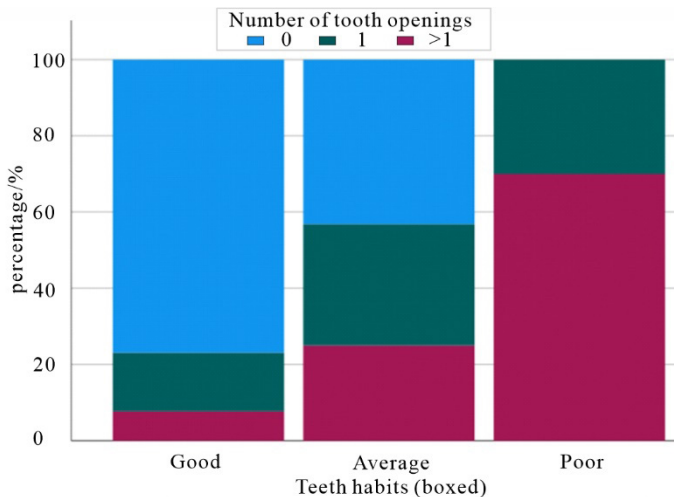


Figure 1: Graph of tooth habits and notch number

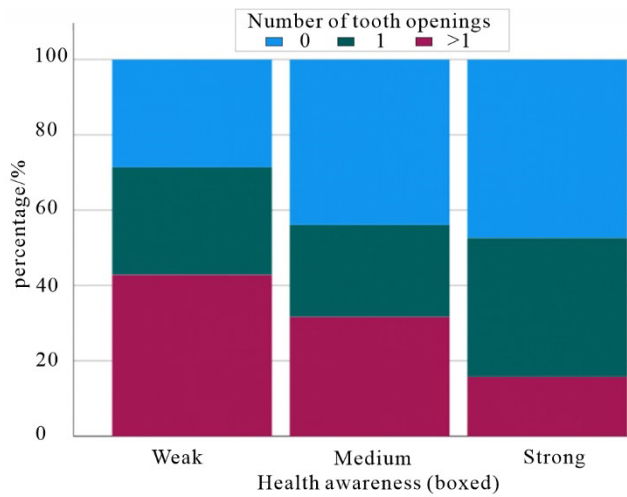


Figure 2: Bar chart of health awareness and number of tooth openings

		0	1	>1
Sex	Female	44.70%	25.50%	29.80%
	Male	40.00%	35.00%	25.00%
Teeth habits (boxed)	Good	76.90%	15.40%	7.70%
	Average	43.20%	31.80%	25.00%
	Poor	0.00%	30.00%	70.00%
Health awareness (boxed)	Weak	28.60%	28.60%	42.90%
	Medium	43.90%	24.40%	31.70%
	Strong	47.40%	36.80%	15.80%
Age	20-40	45.70%	28.60%	25.70%
	40-60	40.60%	28.10%	31.30%

Figure 3: Cross tabulation of the number of tooth openings under different grouping methods

joint disorder, and other problems. The degree of severity is closely related to dental habits and health awareness. Therefore, it is necessary to carry out a certain degree of oral restoration, mainly including three aspects (Gu et al., 2016; Ge, 2020):

1. Oral Cosmetic Repair: For mildly worn melon seed teeth, you can choose oral cosmetic repair. Through advanced dental beauty techniques such as porcelain veneers and all-ceramic veneers, the tooth shape and function can be restored. In addition, cosmetic repair can also improve tooth color, making your smile more brilliant.
2. Dental Veneers: For moderately worn melon seed teeth, you can choose dental veneers. Veneers are made of high molecular materials and adhere to the tooth surface, effectively covering wear marks and restoring tooth shape. Dental veneers have good biocompatibility and high durability, allowing you to maintain a beautiful smile for a long time.
3. Oral Health Care: Developing good oral hygiene habits, regularly undergoing oral examinations, and promptly discovering and treating oral diseases are the keys to preventing melon seed teeth. In addition, reducing the chewing of hard food and choosing soft food can lower the risk of tooth wear.

5. CONCLUSION

In summary, melon seed teeth are a common oral problem that can have a certain impact on the patient's appearance and may lead to oral health issues. Good dental health can improve people's health levels and reduce the risk of other diseases. Healthy and beautiful teeth can make people more confident and easier to communicate with. Finally, maintaining good dental health also requires attention to oral hygiene, such as brushing twice a day at least, regularly going to the dentist for examination, cleaning, and restoration. By comprehensively improving dental habits and health awareness, not only can oral problems be reduced, but also dental and physical health can be maintained.

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